CLAIMS

What is claimed is:

1. A network device comprising:

a processor;

an input interface for receiving a plurality of packets coupled to said processor, said input interface comprising at least one input port wherein at least one said input port is configured to sample at least one input packet and transmit a sampled input packet to said processor;

an output interface for transmitting a plurality of packets coupled to said processor, said output interface comprising at least one output port wherein at least one said output port is configured to sample at least one output packet and transmit a sampled output packet to said processor; and

a switching fabric coupled to said input interface and said output interface, said switching fabric configured to transmit a packet between said input interface and said output interface.

2. A network device as recited in Claim 1 wherein at least one said input port comprises a countdown register, wherein said input port is configured to sample a packet according to said countdown register.

3. A network device as recited in Claim 1 wherein at least one said output port comprises a countdown register, wherein said output port is configured to sample a packet according to said countdown register.

4. A network device as recited in Claim 1 wherein said processor transmits said sampled input packet and said sampled output packet to a central control station over a network.

5. A network device as recited in Claim 4 wherein said central control station comprises a statistical monitoring station.

6. A network device as recited in Claim 1 wherein said sampled input packet comprises an identification of said input port that sampled said sampled input packet.

7. A network device as recited in Claim 1 wherein said sampled output packet comprises an identification of said output port that sampled said sampled output packet.

8. A network device as recited in Claim 2 wherein said countdown register is a random number countdown register.

9. A network device as recited in Claim 3 wherein said countdown register is a random number countdown register.

10. A method of sampling a packet comprising:

a) receiving a plurality of packets at an input network circuit, said input network circuit comprising at least one input port;

b) sampling at least one input packet at said input port;

c) transmitting at least one sampled input packet to a processor;

d) transmitting at least on packet from said input network circuit to an output network circuit over a switching fabric, said output network circuit comprising at least one output port;

e) sampling at least one output packet at said output port; and

f) transmitting at least one sampled output packet to said processor.

11. A method as recited in Claim 10 wherein said b) comprises sampling said input packet according to a countdown circuit.

12. A method as recited in Claim 11 wherein said countdown circuit is a random number countdown circuit.

13. A method as recited in Claim 10 wherein said e) comprises sampling said output packet according to a countdown circuit.

14. A method as recited in Claim 13 wherein said countdown circuit is a random number countdown circuit.

15. A method as recited in Claim 10 further comprising said processor transmitting said sampled input packet to a statistical monitoring station over a network.

16. A method as recited in Claim 10 further comprising said processor transmitting said sampled output packet to a statistical monitoring station over a network.

17. A method as recited in Claim 10 wherein said sampled input packet comprises information regarding said input port performing said b).

18. A method as recited in Claim 10 wherein said sampled output packet comprises information regarding said output port performing said e).

19. A system for sampling a packet comprising:

processing means;

means for receiving a plurality of packets over a network, said means for receiving a plurality of packets comprising an input means for sampling at least one packet and transmitting a sampled incoming packet to said processing means, said means for receiving a plurality of packets coupled to said processing means;

means for transmitting a plurality of packets over said network, said means for transmitting a plurality of packets comprising an output means for sampling at least one packet and transmitting a sampled outgoing packet to said processing means, said means for transmitting a plurality of packets coupled to said processing means; and

switching means coupled to said means for receiving a plurality of packets and said means for transmitting a plurality of packets, said switching means for transmitting a packet between said means for receiving a plurality of packets and said means for transmitting a plurality of packets.

20. A system as recited in Claim 19 wherein at least one said output means comprises a countdown means, wherein said output means is configured to sample a packet of said plurality of packets according to said countdown means.

21. A system as recited in Claim 19 wherein at least one said input means comprises a countdown means, wherein said input means is configured to sample a packet of said plurality of packets according to said countdown means.

22. A system as recited in Claim 19 wherein said processing means transmits said sampled incoming packet and said sampled outgoing packet to a central control means over a network.

23. A network device comprising:

a switching fabric;

an input interface coupled to said switching fabric, said input interface comprising at least one input port;

an output interface coupled to said switching fabric, said output interface comprising at least one output port;

a computer-readable memory coupled to said input interface and said output interface; and

a microcontroller coupled to said input interface and said output interface, said microcontroller for executing a method of sampling a packet, said method comprising:

a) sampling at least one incoming packet at received at said input port;

b) transmitting said sampled incoming packet to said microcontroller;

c) transmitting at least one packet from said input interface to said output interface over said switching fabric;

d) sampling at least one outgoing packet at said output port; and

e) transmitting said sampled outgoing packet to said microcontroller.

24. A network device as recited in Claim 23 wherein said method further comprises said microcontroller transmitting said sampled incoming packet to a statistical monitoring station over a network.

25. A network device as recited in Claim 23 wherein said method further comprises said microcontroller transmitting said sampled outgoing packet to a statistical monitoring station over a network.